

CLAIMS

1. An underpinning pile for lifting and underpinning a settling foundation comprising;
5 a pile;
said pile being provided with a pile anchor head;
characterised by
said pile anchor head being provided with a lifting means for lifting said settling foundation.
- 10 2. An underpinning pile as claimed in Claim 1 further characterised by said lifting means comprising one or more flanges.
- 15 3. An underpinning pile as claimed in Claim 1 further characterised by said lifting means comprising one or more fastening pins.
- 20 4. An underpinning pile as claimed in Claim 2 further characterised by said flanges being on opposite flat parallel surfaces of said pile anchor head, so a transfer beam can rest on each opposing side.
- 25 5. An underpinning pile as claimed in any one of the preceding claims further characterised by the pile anchor head having a tabular hollow section for receiving the pile.
- 30 6. An underpinning pile as claimed in any one of the preceding claims further characterised by said pile anchor head being provided with a locking means for securing movement of the pile relative to the pile anchor head.

7. An underpinning pile as claimed in Claim 6 further characterised by said locking means being a pile head anchor plate.

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8. An underpinning pile as claimed in Claim 7 further characterised by the said pile head anchor plate fitting with a small clearance inside the tabular hollow section of said pile anchor head.

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9. An underpinning pile system for lifting and underpinning a settling foundation comprising ;

a pile;

a pile anchor head;

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a jacking means;

a transfer beam;

characterised by

said pile anchor head (21) being provided with a lifting means for lifting said settling foundation.

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10. An underpinning pile system for lifting and underpinning a settling foundation comprising ;

a pile;

a pile anchor head;

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a jacking means;

a transfer beam;

characterised by

said jacking means includes a hydraulic jack and a thrust block.

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11. An underpinning pile system as claimed in claim 10 further characterised by said thrust block comprising of a

horizontal member with two vertical legs at the ends of the horizontal member into which, nearing the end of the leg, is made a through hole and on the same sides where the hole is made, is also attached wedges to allow the thrust block
5 to rest on the transfer beam via the base contact with the wedge in each leg to top edges of the transfer beam.

12. An underpinning pile system as claimed in claim 11 further characterised by said thrust block having two solid
10 bars that can be slid through the through hole located at the base of the two legs of the thrust block to create a reaction against the base of the transfer beam for the jacking means.

15 13. A method for using an underpinning pile system for lifting and underpinning a settling foundation comprising the steps of;
excavating a hole adjacent to said settling foundation;
placing a pile anchor head inside the excavation hole;
20 laying of transfer beam such that said transfer beam sits on a flange of said pile anchor head;
installing a jacking means;
placing a pile through a tabular hollow section of said pile anchor head;
25 driving said pile to set; and
locking off said pile to said pile anchor head;

14. A method for using an underpinning pile system as claimed in claim 13 in which said laying of the transfer
30 beam includes securing said transfer beam to said pile anchor head.

15. A method for using an underpinning pile system as claimed in claim 14 in which said securing is by welding a plurality of wedges to said transfer beam and said pile anchor head.

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16. A method for using an underpinning pile system as claimed in claim 14 in which said securing means is a fastening pin fastening said transfer beam and web of said pile anchor head.

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17. A method for using an underpinning pile system as claimed in claim 13 in which said jacking means further comprises a thrust block and a jack.

15 18. A method for using an underpinning pile system as claimed in claim 17 in which said thrust block further comprising of a horizontal member with two vertical legs at the ends of the horizontal member into which, nearing the end of the leg, is made a through hole and on the same
20 sides where the hole is made, is also attached a wedge on the opposing sides to allow the thrust block to rest on the transfer beam via the base contact with the wedge in each leg to the top edges of the transfer beam.

25 19 A method for using an underpinning pile system as claimed in claim 17 in which said thrust block having two solid bars that can be slid through the through hole located at the base of the two legs of the thrust block to create a reaction against the base of the transfer beam for
30 the jacking means.

20 A method for using an underpinning pile system as claimed in claim 13 in which said driving being carried out repeatedly on a plurality of pile.

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21 A method for using an underpinning pile system as claimed in claim 13 in which said locking off said pile to said pile anchor head is by fastening a pile anchor head plate to inside of said tabular hollow section of said pile
10 anchor head.

22 A method for using an underpinning pile system as claimed in claim 21 in which said fastening is by welding.

15 23. A method for using an underpinning pile system as claimed in claim 21 in which said fastening is by bolting.